# A Review of Alberta's Environmental and Emergency Response Capacity

## LEARNING THE LESSONS AND BUILDING CHANGE

Report of the Alberta Environmental Protection Commission

Alberta

**Alberta Environment**
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Learning the Lessons and Building Change.
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# Acknowledgements

On August 14, 2005, the Honourable Guy Boutilier, Minister of the Environment, established an Environmental Protection Commission to review and make recommendations on Alberta's ability to respond to environmental incidents in the wake of the disastrous spill of Bunker C oil and pole treating oil into Lake Wabamun.

The Commission met throughout the fall, looking at the current system and what impact possible changes could make for Alberta. The Commission provided the Minister with an interim report on September 30, 2005 and this, their final report, at the end of November 2005.

The Commission wishes to thank the Honourable Guy Boutilier for his courage in establishing the Commission and giving us the resources to look at the issues, particularly as we found that the problems and solutions go beyond the mandate of Alberta Environment and instead lie within the Government of Alberta's overall emergency management and response system.

The Commission also thanks all those who gave of their time, expertise and insights. A list of participants and those who sent in submissions can be found on the inside back cover.

The Commission wants to thank the professionals from the Alberta Government and the advisors who supported its efforts, including:

- Mr. Mark Egener, S.e.t. Inc. (Environmental and risk management consultant)
- Mr. Derrie Ostapyk, Shell Chemicals Canada Ltd.
- Ms. Judith Dyck, Judith Dyck Strategic Communications Ltd.
- Mr. Doug McCutcheon, University of Alberta
- Mr. Doug Hili, Nova Chemicals Ltd.
- Mr. Ted Stoner, Canadian Petroleum Products Institute
- Mr. Bill Purdy, Mayor, Village of Wabamun
- Mr. Bill Macdonald, Project Manager, Alberta Environment
- Mr. Martin Bundred, Researcher, Alberta Environment
- Ms. Terri Savitsky, Researcher, Municipal Affairs (Emergency Management Alberta)
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A Review of Alberta's Environmental and Emergency Response Capacity – Learning the Lessons and Building Change

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*A bibliography is available from Alberta Environment.*
*Photos used throughout the report were sourced within the Alberta Government unless otherwise noted.*
*Photo of Lake Wabamun on front cover courtesy of the* Edmonton Journal.

# Overview of the Commission's Findings and Recommendations

Environmental incidents generally begin as something quite different – a vehicle accident, a train derailment, a wellhead servicing mishap, a flood that releases chemicals into the water supply, a tornado that goes through an industrial area.

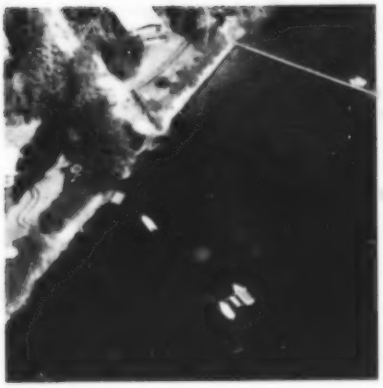
The first people on the scene are usually the industrial operators or private citizens who happen by or are involved. They are quickly followed by municipal emergency workers – firefighters, paramedics and police. When it becomes apparent that there is a threat to the environment, another series of callouts occurs to deal with the hazard and minimize impacts on humans and the environment.

This is what happened on August 3, 2005. The major spill at Lake Wabamun began as a train derailment and quickly became a catastrophe for the community and a disaster for the environment. Incidents of this seriousness and magnitude don't happen very often, but when they do, Alberta must have a world-class system in place that minimizes their impact on people and the environment, including our land, air, water and wildlife.

As members of the Environmental Protection Commission, we are honoured to have been asked to look over Alberta's emergency response system and identify ways that Alberta can better manage, prepare for and respond to future environmental crises.

We found that the problems and solutions go beyond the mandate of Alberta Environment; they lie within the Government of Alberta's emergency management and response system. Our conclusions relate to the overall system and the five pillars that support it, including prevention and mitigation; preparedness; response; recovery; and research and knowledge.

- The Alberta Government needs to take decisive and proactive steps to strengthen its emergency management system. That system needs to be world class in order to respond to the increased risks brought on by a growing population and economic base, and increased industrial activity;
- The Alberta Government needs to adopt a comprehensive approach that can respond to any emergency, whether caused by nature or man;
- The response to an incident has to be swift. It has to be the right response. It has to be there as long as it takes to deal with the disaster. And it has to be scaled to handle the worst-case scenario;



- The chronic irritant of unresolved jurisdictional differences between federal, provincial and municipal governments has to be dealt with; that this continues is increasingly unacceptable; and
- The risk to public health and the environment has to be minimized as an ever-increasing volume and diversity of goods are transported across the province.

As well, the Alberta system needs a culture of anticipating the worst and then implementing the appropriate emergency response as rapidly as possible. This needs to be public policy led by government. Cautious approaches that are overly sensitive to issues of jurisdiction leave the province vulnerable.

Alberta must be prepared, even over-prepared. We can all point to many examples beyond Lake Wabamun where people paid the price when this wasn't the case – look at New Orleans in the aftermath of Hurricane Katrina.

Finally, Alberta industry, governments and the public must be engaged, ready and informed.

We believe in the long-standing principle that the person or industry that creates the environmental incident should clean up the problem and pay for that clean-up. But it's clear that the Alberta Government needs a stronger oversight and response capacity to fill in where needed.

The government cannot privatize public safety.

Action is needed on a number of fronts and the effort will require people and resources. The time to get ready is now.

The Commission's key recommendations include:

- Creating a senior agency that is responsible for a comprehensive all-hazards approach to emergencies, disasters and security, reporting directly to Executive Council;
- Implementing a one-window emergency call centre within the new agency to ensure that the right response is triggered as quickly as possible when an incident occurs;
- Developing a safety, environmental and security monitor to support the system. It should be a non-governmental organization led by a multi-disciplinary stakeholder group and given the mandate and resources to support world-class research and emergency management techniques;
- Adopting an all-hazards risk management decision-making process that includes the identification of top-tier "at risk" water bodies and other environmentally sensitive areas;
- Forming a dedicated emergency support team within Alberta Environment to enhance the technical expertise available during an incident. This team should be available to provide on-site environmental advice for major incidents.

We believe in the long-standing principle that the person or industry that creates the requirement to clean should clean up the problem and pay for that cleanup. But it's clear that the Alberta Government needs a stronger oversight and response capacity ... The government cannot privatize public safety.

*Alberta Environmental Protection Commission*

- Adopting the Incident Command System (ICS) across Alberta to ensure effective coordination during emergencies and communication with affected public groups. The Commission is convinced that the ICS model provides a proven process for helping ensure the right people are in charge and the right resources are identified;
- Significantly enhancing the number and effectiveness of joint emergency response training and field simulations conducted by industry and government (federal, provincial and municipal) emergency response groups;
- Working through jurisdictional issues ahead of time, including those involving First Nations' lands and people, to ensure that these issues don't stand in the way of an effective emergency response; and
- Resolving rail transportation issues to ensure that risks to the environment and people are well managed.

Our thanks and appreciation goes to the hundreds of people who gave of their time and expertise, providing us with thoughtful advice and insights. In particular, we would like to thank our advisors and researchers. We trust that this report honours all their contributions and will help make Alberta's environmental and emergency response system the best in the world.

Dr. Eric Newell, Chair
Dr. Ron Goodman
Mr. Doug Goss
Mr. Alan McFadyen
Dr. Marlo Raynolds
Dr. David Schindler
Mr. Al Scholz

# Alberta Environmental Protection Commission – Mandate and Process

On Wednesday, August 3, 2005, 43 rail cars went off the tracks beside Lake Wabamun, spilling Bunker C oil and pole treating oil into the lake.

As the days went on, the situation for residents, including the Paul First Nation, was frustrating. For people watching the news, it was bewildering. The rail line reopened but the oil continued to spread across the lake, coating birds and shorelines. Various federal, provincial and municipal government agencies were involved, yet the system seemed unable to adequately address the situation. Appropriate quantities of containment booms only arrived days after the spill. There was a frightening delay in finding out that pole treating oil was one of the spilled substances and more time elapsed before its precise properties were determined.

What began as a derailment turned into a major environmental, social and economic disaster. What should have been a coordinated and effective response from the start had a fitful, drawn out beginning. Where clear information should have been readily available to everyone affected by the spill, there was confusion.

Recognizing this, the Honourable Guy Boutilier, Minister of the Environment, announced on August 14 that he was establishing the Environmental Protection Commission as a proactive measure to address issues emerging from the incident.

The frustrating question on everyone's lips "Who's in charge here?"

*Lake Wabamun Residents Committee Report to the Environmental Protection Commission*

## The Commission and its Mandate

Dr. Eric Newell, University of Alberta Chancellor and former Syncrude Chief Executive Officer, was named Chair of the Commission. The Commission's members are:

- Dr. Ron Goodman, Oil spill response expert
- Mr. Doug Goss, Lake Wabamun stakeholder
- Mr. Alan McFadyen, Western Canadian Spill Services
- Dr. Marlo Raynolds, Pembina Institute
- Dr. David Schindler, University of Alberta
- Mr. Al Schulz, Environmental consultant

The Commission was asked by the Minister to look at response systems in other provinces and jurisdictions, review Alberta's current emergency response model and assess its strengths and weaknesses, and make recommendations around six objectives.

The Commission's role was not to review the Wabamun incident but to use the experience of the event to inform its work in recommending changes for the future. Alberta Environment is conducting a separate investigation into the incident, as is the federal Transportation Safety Board of Canada.

### ENVIRONMENTAL PROTECTION COMMISSION – OBJECTIVES

**Objective One**

Recommend any changes needed to the Alberta government's capacity to respond, where industry cannot, to environmental incidents such as the spill at Lake Wabamun.

**Objective Two**

Review Alberta Environment's emergency response system in order to identify recommendations for enhancement in preventing, mitigating, and responding to these incidents.

**Objective Three**

Review the provision of information required in a report to Alberta Environment and the associated reporting process regarding the products and substances involved in spills.

**Objective Four**

Review potential high-risk situations affecting Alberta's lakes, rivers and other water bodies, as part of the government's overall risk management strategy.

**Objective Five**

Review best practices for preventing, mitigating, and responding to these incidents.

**Objective Six**

Provide advice to the Minister and other Government Ministries on safety and rail transportation issues to assist them in working with the appropriate jurisdictions.

## Process

The Commission set up working groups headed by experts, initially organized around the six objectives and then broadened out to include further work on risk management, coordination, training and exercises, research and environmental assessment.

The Commission held seven meetings and 18 focus sessions. In addition, the Commission held a very productive meeting with representatives from the people most affected by the Wabamun spill to get their input on what they believed could be done to make a positive difference. These groups included the Lake Wabamun Residents Committee, Lake Wabamun Enhancement and Protection Association, Lake Wabamun Watch Environmental Society, Parkland County, Paul First Nation, Village of Wabamun, and YoWoChAs Outdoor Education Centre whose representatives brought forward concerns shared by those who operate facilities on the lake.

Commission members, advisors and support teams observed a spill exercise on the North Saskatchewan River at Devon. This exercise was sponsored by Western Canadian Spill Services and provided an excellent opportunity to witness an upstream oil and gas training exercise. As well, they attended a tabletop exercise on a pipeline rupture impacting an adjacent community that was sponsored by Nova Chemicals and Strathcona Emergency Services.

The Commission heard separate presentations at its meetings from CP Rail and CN Rail on rail line safety procedures and plans; Enbridge on pipeline incident response and safety; Alberta Environment on its response at Lake Wabamun; Emergency Management Alberta on the Geographic Information System (GIS) component of the emergency management operating system (EMOS); a joint presentation by Alberta Environment, Municipal Affairs and Infrastructure and Transportation on emergency management in the province; the Canadian Petroleum Products Institute on industry emergency preparedness and response; Enform on training; and Major General (retired) Clive Addy on the Canadian Forces emergency response capability.

Submissions were received from Capital Health, Paul First Nation, Petroleum Services Association of Canada, the Lake Wabamun Residents Committee, and the Alberta Motor Transport Association.

# Researching the Objectives

The Commission looked at response systems in other provinces and jurisdictions, reviewed the current model in Alberta and assessed its strengths and weaknesses, and researched and consulted on a range of options, best practices and potential solutions to strengthen the emergency response framework in Alberta.

The working groups met throughout the fall and reported back to the Commission at its meetings. Focus sessions were organized around the six objectives and were opportunities for free ranging discussions on the issues and provided additional ideas, clarity and direction for follow-up by the working groups. Participants included Commission members, advisors and researchers; industry, technical and emergency services experts; and representatives from municipalities and the provincial and federal governments.

### Objective One

Recommend any changes needed to the Alberta government's capacity to respond, where industry cannot, to environmental incidents such as the spill at Lake Wabamun.

The focus sessions on objective one quickly recognized that:

- The precursors to environmental incidents are natural or man-made occurrences such as floods, tornadoes, extreme rainfall events, highway accidents and train derailments, to name only a few;
- Alberta's capacity to respond to the environmental effects, public health aspects or damaged infrastructure arising from these occurrences is intimately connected to Alberta's overall emergency management and response system; and
- Fast, effective, well-coordinated response is not just associated with the environmental aspects of an emergency or disaster, but with the whole emergency management system.

Therefore, the Commission studied the broader aspects of emergency response and emergency management in Alberta in considerable detail. It found that smaller incidents are routinely handled and handled well by an emergency management and response system across the province that involves industry, municipal first responders, and provincial government support. However, the system is less effective in dealing with larger and more complex incidents. The Commission found areas that if strengthened, improved or revitalized, would result in a better system and a more effective, efficient and beneficial response.

Attention was focused on a number of important aspects, including:

> The system for notifying response agencies when an incident, emergency or disaster has occurred;

> Who assesses the severity of an incident and how, including the determination of who responds and what the response is;

> The Government of Alberta call-in system and how different government departments receive notification of an event;

> Determining who activates and coordinates activity at emergency operations centres, including the one at the scene;

> What happens at the scene of an incident, including:
- Who determines what resources should respond,
- Who ensures that the resources are there,
- Who is in charge of and coordinates activity at the scene, and
- What happens if the existing processes falter;

> The roles and relationships at the scene and supporting emergency operations centres of municipal/provincial/federal government departments and agencies, industry and their responders.

**Objective Two**

Review Alberta Environment's emergency response system in order to identify recommendations for enhancement in preventing, mitigating, and responding to these incidents.

The focus groups included the broader aspects of prevention and mitigation in their assessment of the response system within Alberta Environment, including:

> The mandate, structure and operation of Alberta Environment's regionalized emergency response system;

> The department's interaction with industry, other municipal/provincial/federal government agencies and departments both on and off the scene of an incident and how training and exercises could enhance these relationships;

> The expertise of the department's response coordinators and whether they and those they call upon have sufficient training, support and resources for the tasks required;

> The need for research on response techniques, equipment and expertise, particularly for hydrocarbon releases into fresh water and other areas of contamination;

> The benefits of having a dedicated group focused on emergency response;

> The effectiveness of current legislation to compel the spiller to take action and how the legislation is applied; and

> Alberta Environment's current emergency response system as compared to similar jurisdictions.

**Objective Three**

Review the provision of information required in a report to Alberta Environment and the associated reporting process regarding the products and substances involved in spills.

The examination in this area included provincial and federal reporting requirements for spills and other releases under various pieces of environmental, transportation of dangerous goods and energy sector legislation. Particular attention was given to the following issues:

> Any product released into the environment can have a negative impact. For example, if a rail carload of wheat spills into fresh water fish habitats, the event could have a disastrous effect on the fish habitat but it wouldn't be a dangerous good incident because wheat isn't classified as a dangerous good. Therefore, the appropriate environmental emergency response would not be triggered under the present system, although reporting would be required to Alberta Environment;

> The information needed on-site about products being shipped or manufactured depends on whether the product is regulated as a dangerous good, including information about how spill remediation is to be carried out and its impact on human health or air, land and water ecosystems;

- Jurisdictional differences in reporting or investigative processes can inhibit effective response, clean up and remediation;
- Better reporting requirements could lead to better coordination and understanding by various government agencies, including the possibility of a single report format; and
- Whether a single call centre for all incidents that must be reported to government – initial reporting when a spill or release occurs – could enhance the response structure.

### Objective Four

Review potential high-risk situations affecting Alberta's lakes, rivers and other water bodies, as part of the government's overall risk management strategy.

The top risks to the environment and the province need to be systematically identified by the Alberta Government. It should be noted that Alberta Environment manages some of the risks to water bodies in the province by requiring restrictions on discharges and releases from operations and through its regulatory and approvals process. The environmental aspects of natural and man-made hazards are not adequately considered in this process. This is a serious gap in Alberta's emergency preparedness.

Among other matters, the Commission and its focus groups considered:

- Identifying risks to Alberta's waterways, including an initial assessment based on important water bodies and population centres;
- Establishing a process for managing risks and using it throughout government, including municipalities;
- Determining an appropriate management strategy related to risks to Alberta's lakes, rivers and other water bodies, and other high level risks facing the province, including:
  - The use of a risk management process to assess and rank risks and select risk reduction strategies including prevention, mitigation, emergency preparedness, response, recovery or remediation, and communicating with key stakeholders,
  - Supporting these strategies with research and information, and
  - Ensuring that a measurement system is established to monitor progress;
- Establishing baseline data for the top-tier risks to Alberta's water bodies and other high-risk environmental areas; and
- Establishing a dialogue about risk issues with key stakeholders in areas at risk.

### Objective Five

Review best practices for preventing, mitigating, and responding to incidents that could have a major impact on the environment.

Discussions around best practices were far ranging and recognized their application to each area of the Commission's mandate. Best practices were reviewed in the areas of:

- Emergency management models;
- Requirements of governments, industry associations and insurance companies for effective and rapid action by industrial operators;
- Effective response strategies employed by contractors or the industry or person responsible for creating an incident or emergency;
- Incident coordination in government, marine shipping, pipeline, upstream petroleum, wildfire and urban fire control sectors, and industry under the Incident Command System;
- Risk management systems within municipalities, industries and other jurisdictions;
- Training models for emergency management within Alberta and elsewhere;
- Classification systems for environmentally harmful products (European and UN developments);

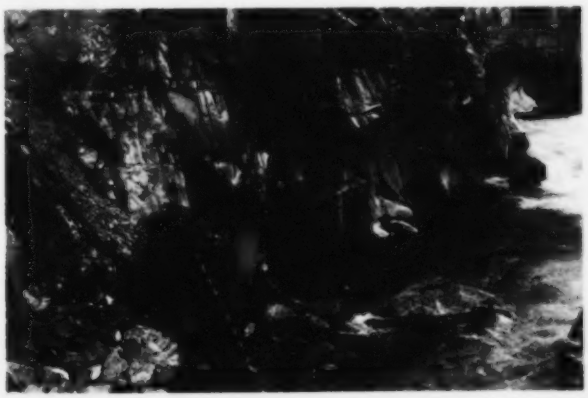
- Technology review and research into emergency response systems, spills, the eventual fate of spilled products, and net environmental benefit analysis;
- How best practices can be effectively shared among response agencies, governments and the public;
- Communicating with the public about hazard preparedness and what is happening when an incident occurs;
- The capacity and effectiveness of communications equipment at the incident scene, including cellular network capacity and dead zones; and
- Follow-up assessment after every major incident to determine effectiveness and develop and share lessons learned.

**Objective Six**

Provide advice to the Minister and other Government Ministries on safety and rail transportation issues to assist them in working with the appropriate jurisdictions.

The discussions of rail safety issues focused on railway jurisdictional problems and broadened out to include more general jurisdictional issues, including:

- Issues arise around who is in charge at a rail incident, both on and off the right of way. These include identifying whose requirements take precedence and jurisdictional barriers to the effective flow of information and advice at the scene of a multi-jurisdictional incident;
- Alberta short line railways can have significant risks associated with shipments of chemicals and hydrocarbons;
- Technical issues exist related to the harmonization of the *Railway Act (Alberta)* and federal regulations;
- Transport Canada has a critical role in ensuring safe rail transport as the number, frequency, speed, concentration of dangerous goods and the weight of shipments increase, particularly in high-risk areas; and
- The potential exists to reduce jurisdictional barriers and raise mutual understanding and trust through intergovernmental agreements and discussions, collaboration and cooperation, and the use of training and exercises.



# Conclusions: Learning the Lessons

The Commission has concluded that deliberate and concerted action is needed in five key areas.

This needs to be done in order to strengthen Alberta's ability to respond effectively to incidents of all kinds:

- Creating and sustaining a world class emergency management system;
- Developing the organization, expertise and support to ensure Alberta's environment is effectively protected from the impacts of emergencies and disasters;
- Building a comprehensive all-hazards approach to managing risks in Alberta;
- Ensuring the most effective and comprehensive response is triggered as fast as possible; and
- Enhancing jurisdictional collaboration, coordination and cooperation in the reduction of risks and in the response to emergencies.

The Dangerous Goods Incident Support Plan was never triggered for the spill at Lake Wabamun because it didn't involve products regulated as dangerous goods. This contributed to a situation where resources weren't activated.

**1. The Government of Alberta needs to create and sustain a world class emergency management system.**

The risks to Albertans and the environment are increasing rapidly because of population growth, industrial expansion and diversification, larger quantities of hazardous materials moving by all modes of transport and the greater impact of severe weather. Alberta's emergency management system has to be up to the challenges it faces.

Alberta's current system is made up of Alberta Government resources, municipal emergency services, and industry. These all include important elements of a world-class response system:

- The highly competent specialist emergency response capacity that exists in the private sector in the province;
- High quality municipal response teams, particularly in large population centres and those communities with a significant industrial base;
- Strong mutual aid arrangements in many parts of the province;
- The Emergency Management Alberta organization, many of its programs and its emergency operation centre facilities;

- The Geographic Information System (GIS) developed for Emergency Management Alberta, which provides on-line map and data support for any kind of incident in the province;
- The Emergency Public Warning System to alert the public to imminent danger;
- The amalgamated emergency call centre of Alberta Environment and Alberta Infrastructure and Transportation; and
- Excellent first responder training facilities in the larger municipalities, the Hinton Training Centre and the Fire Etc. training centre at Vermillion, among others.

Each part of the system also has its challenges. Within the Alberta Government, having the components situated in different departments makes it more difficult to assess the overall effectiveness of the system and strengthen it where necessary. Different departments have different protocols that don't always mesh well with each other and can leave gaps. As well, seemingly insignificant decisions in one department such as different training schedules can have unintended consequences for the overall response network. The overall system can be significantly weakened by any of the above and weaknesses often don't show up until there is a major incident.

The Government of Alberta needs a culture that anticipates the worst and responds proactively to provide support to incident sites. Fire departments usually respond to an alarm with everything they may need to deal with a situation. The province needs the same. Under-response may conserve a few resources in the short term, but it almost always wastes time in getting the right people and equipment on the scene of a major incident or disaster.

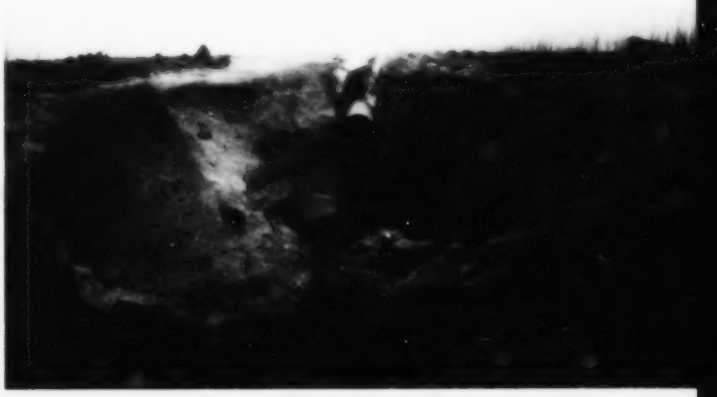
The current system requires every municipality to have an emergency plan under the *Disaster Services Act*. Industry is required to have their own emergency plans by the *Transportation of Dangerous Goods Act (1992)*, the *Canadian Environmental Protection Act* and various requirements for getting permits.

Municipal and industrial emergency responders are the front-line for any emergency or disaster in the province and the public relies on them being capable of dealing with a greater number and wider range of emergencies than ever before. Larger centres and the areas surrounding them are generally well resourced and equipped. They have mutual aid arrangements, resulting in a more comprehensive response and effective coordination at the local level. There is substantial ability to dispatch significant resources in the early stages of an incident to contain the impact.

Smaller and more isolated communities, including many First Nations, have access to significantly less well equipped response resources. In general, volunteer first responders provide valuable and commendable service to their communities, but faced with a major incident, the equipment and resources available to them at short notice can be quickly overwhelmed. As well, there is limited capacity to rapidly establish an effective on-site coordinating centre or emergency operations centre.

In recent years there has not been a coordinated and sustained effort to ensure that municipal training programs address the all-hazards threat, or a common incident management system. Neither has there been a comprehensive program of joint exercises with other government departments and industry.

Alberta's regulatory system is based on the principle that the person or corporation who owns or is shipping a product is responsible for clean-up if there is a spill or other release. It includes penalties for not following the rules and it's fair to say that the costs of clean-up, fines and litigation are powerful incentives for compliance. Industry has responded and the system works well overall. But what happens when it doesn't? What's the backstop if a company or individual can't or won't take the action necessary to limit the environmental impact of a spill or release? Albertans look to government to step in and ensure the system does work. This has implications for what the Alberta Government does and how it's organized.



Emergency management experts in government have noted that there are a limited number of opportunities for emergency response teams to take on cooperative planning and conduct exercises on incident response scenarios because of time spent on other duties.

**2. The Government of Alberta needs to ensure that the organization, expertise, support and knowledge are there to effectively protect the environment from the impact of emergencies and disasters.**

The Government of Alberta should have the capacity to address the environmental aspects of an incident or disaster and ensure that the response is swift and effective, particularly when spills or releases occur around water bodies. Primary responsibility for the Alberta Government's overall response to a disaster is with Emergency Management Alberta. However, when it comes to the environmental aspects of a disaster, particularly a major disaster, Alberta Environment needs to bolster its existing regionally-based capacity with a strong core group of experts. This group needs advanced response knowledge, training and experience and information about best techniques and equipment that should be rapidly applied at the site of a major incident.

Strong research and analysis is needed if the province, municipalities and industry are to prevent, mitigate, plan for and respond to environmental incidents. As well, baseline data is important in establishing the state of a water body before a major environmental incident occurs. Alberta Environment, as well as other departments and groups, have collected various types of data for surface water bodies, generally those at chronic risk from human and industrial development. However, knowledge gaps exist for those areas exposed to acute risk, for example, water bodies adjacent to transportation corridors and pipelines. A common database of all information should be developed as soon as possible.

Research programs should be coordinated with institutions and industry and aimed at areas where knowledge is lacking e.g. the fate of oil in freshwater systems, air monitoring during industrial fires and contaminated firewater disposal. Leading edge response techniques and technologies need to be identified or developed.

**3. Alberta needs to build a comprehensive, all-hazards risk management approach.**

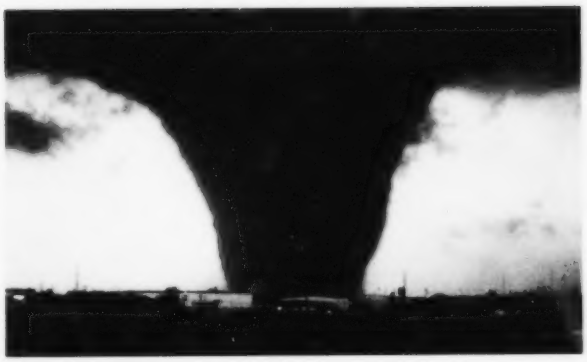
Alberta needs to build a comprehensive all-hazards risk management approach to ensure that risks are reduced as far as practicable and the province can respond to the residual risk. Emergency planning should generally be based on this all-hazards approach rather than a hazard specific model – an emergency is an emergency and most have a broad impact e.g. a flood can have social, health, safety and environmental impacts.

A risk reduction system has five pillars: prevention and mitigation; preparedness; response; recovery; and research and knowledge. Without a body of strength around each of these, Alberta will incur additional costs, potential loss of life and environmental damage as a result of a serious incident.

Alberta should base its risk management system on leading edge practices and ensure that the system can adapt to changing industrial, societal and environmental conditions. This will require strengthening the province's research and knowledge base and developing cost-efficient mechanisms for transferring best-practice information to those who need it.

The review of Alberta's risks must focus on the vulnerable water bodies as a first step. Starting with those ranked as most vulnerable, risk management plans should be developed and coordinated with municipalities in the area. This will ensure that the necessary prevention and mitigation measures, emergency planning, and response and recovery mechanisms are used to address the needs of local authorities and the public.

All plans should be regularly tested through simulation exercises to ensure that they work. Everyone who will be involved when an emergency occurs needs to get to know each other's responsibilities, strengths and capacities before an incident occurs. Simulations also offer the most practical way of working through jurisdictional issues so they don't hinder a response. Further, people need to get the additional training they require for their roles.

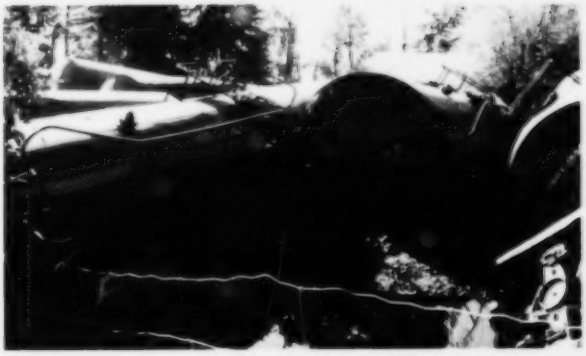


ALL-HAZARDS

Hazards are generally identified as sources of danger or risk to people, domestic and wild animals, fowl, aquatic life, the environment and property. They are characterized either as natural events (geological, meteorological, and biological) or human-caused events (accidental and intentional).

An all-hazard approach considers the following for both natural and human-caused categories of events:

- It determines the likelihood of their occurrence and the vulnerability of people, property, and the environment;
- It analyses the potential for detrimental impacts, including: impacts on the health and safety of responders and others in the affected area; the environment; continuity of operations; property, facilities, and infrastructure; the delivery of services; economic and financial conditions; regulatory and contractual obligations; and the reputation of or confidence in the response organizations.



**4. The system needs to be strengthened in order to ensure that the most effective and comprehensive response is triggered as quickly as possible.**

The early moments of an emergency or disaster are confusing and it is always difficult to determine its ultimate scope and impact. A successful response, therefore, must be comprehensive, rapid, coordinated, effective and sustainable.

The current culture within the Alberta Government is to respond conservatively and add resources if required. This differs from the first responder practice of over-responding at the outset of an incident, which ensures that the most urgently needed resources will be at the scene. This culture of over-responding recognizes that it is easy to scale back but almost impossible to regain ground lost to an initial inadequate response... If an ambulance goes to an accident scene and isn't needed, everybody recognizes that going to the scene was still the right thing to do. The Alberta Government needs to ensure that this culture takes hold at all levels of response and that Alberta government employees are empowered to scale their initial response to the worst-case level.

The location of the incident and potential extent of the impact must also be communicated quickly to a contact point in the government where the situation can be evaluated and steps taken to assist the first responders in managing the situation. That means having people with the right training and knowledge available to do the assessment, trigger the response and ensure that it is comprehensive and coordinated.

When the disaster involves a spill or release, success requires having good, clear information on the substance and the situation. This information has to be available to the front line emergency responders, often fire fighters.

Another aspect of a successful response is having access to vital equipment. Equipment caches for high risk and environmentally sensitive areas ensure that it will be quickly available to the scene.

Past experience has shown that one of the primary hurdles responders on the site of any incident may have to face is a technical communications overload or communications black spot as transportation corridors often go through remote areas or areas with complex topography. These technical communications difficulties hinder an effective transfer of information to and from an incident scene.

Effective public communications is another critical component of a successful emergency response. Communications with the public, residents and other stakeholders in at-risk areas should begin as soon as risks are identified and continue when risk reduction programs are implemented. It should include warning communications when an incident occurs and the provision of safety information and progress reports while the incident is being managed. Communications about recovery, restoration and remediation following an incident are also important.

**5. Decisive steps need to be taken to enhance jurisdictional collaboration, coordination, and cooperation.**

Jurisdictional barriers impede efficient and effective emergency response. A concerted effort must be made to remove or significantly reduce them.

The movement of hazardous and environmentally deleterious products in ever-greater quantities and frequencies represents an increasing risk to public and environmental health. Current federal and provincial regulations require emergency response planning and support for the most hazardous products, but these are a limited subset of the total volume of substances manufactured, shipped and transported.

The province and the federal government need to quickly and cooperatively work on a regulatory framework that ensures adequate information is available to responders when an incident occurs. All the necessary information and data must be readily available to the responding agencies, no matter where the incident occurs or what mode of transport is involved in the movement of the product.

The jurisdictional split between the federal and provincial governments should be addressed as a matter of priority when it comes to risk mitigation and response to incidents. The two orders of government have to be able to seamlessly coordinate their respective roles, responsibilities and resources when response to an incident is concerned.

The needs of First Nation communities must be addressed in the coordination, planning and deployment of the response and recovery efforts, and as such, representatives must be included where a threat to the environment includes an impact on their community.

# Recommendations: Building Change

The Commission believes that Alberta needs a world class emergency management and response system in order to address and manage the risks the province faces. It is recommending ways of focusing, strengthening and building change into the current system, including training and the regulatory framework. The Commission's recommendations are:

**1. Create a senior agency for Alberta responsible for a comprehensive all-hazards approach to emergency, disaster and security issues management. It should report directly to Executive Council where it can provide leadership and coordination throughout the Government of Alberta for these critical functions and, where necessary, direct them. It should be given sufficient resources to do its job well.**

The following specific actions should be undertaken:

a. Appoint a senior official to head the agency and empower that person to provide leadership on the following objectives as a start:

   i) Lead the process of managing the high risks to Alberta (see recommendation 6 below);
   ii) Work with the government departments and agencies to develop prevention and mitigation plans to reduce the potential consequences of these risks;
   iii) Ensure that the government's emergency response system is effective and efficient;
   iv) Ensure that the emergency management system as it exists outside the Alberta government is effective, including industry, industry associations and municipalities;
   v) Ensure that provincial, municipal and industrial emergency response and recovery plans are in place, tested and used in exercises;
   vi) Ensure that government and municipal emergency response plans include the environmental aspects of emergencies;
   vii) Ensure that all participants in the emergency management system are adequately trained;
   viii) Develop and enhance the government's emergency call centre;
   ix) Develop a common set of criteria for determining the level of response support required in an incident;
   x) Develop and test the emergency support to small and isolated communities (see recommendation 1.d. below);
   xi) Identify the most critical jurisdictional issues, and

xii) Lead the development of the multi-stakeholder steering committee charged with establishing a leading edge institute to promote excellence in the support of emergency and risk management in Alberta (see recommendation 2 below).

b. The staffing of the agency would include the core group from Emergency Management Alberta as well as others as required for effective operations. An interdisciplinary team also should be established within the agency through secondments from the emergency response groups in key departments such as: Alberta Health and Wellness, Alberta Environment, Alberta Infrastructure and Transportation, the Alberta Energy and Utilities Board, Sustainable Resource Development, and others as appropriate. This team will provide a balanced emergency management perspective. The agency should provide the permanent secretariat for the institute (see recommendation 2 below).

c. Develop and enhance an emergency call centre within the agency and make it the Alberta government's 'one window' for reporting natural disasters, spills, releases and other emergency incidents.

i) The centre will make the initial assessment of all incidents that pose a risk to public health, safety and the environment in Alberta;

ii) It will trigger the right response as quickly as possible; and

iii) It should be modeled on 9-1-1 centres.

d. The agency should ensure that a viable, effective and immediate emergency response capacity is in place in all parts of the province.

Municipalities manage immediate emergency response directly and through mutual aid agreements with other municipalities. Where effective mutual aid is not feasible, such as in smaller or isolated communities, the agency should be prepared to dispatch support resources to strengthen municipal emergency operations centres and coordinating functions in the very early stages and throughout an incident.

Arrangements should be made with Indian and Northern Affairs Canada to ensure that the same support is available to First Nations communities in Alberta.

This recommendation is aimed at ensuring that Alberta has the world-class emergency and risk management system it needs. It is based on incorporating or enhancing many of the excellent elements that already exist in Alberta.

Placing the agency at the centre of government will provide stronger coordination and leadership and streamline the key assessment, reporting and alerting functions. The head of the agency must be sufficiently senior to be able to deal with challenges across the government and provide leadership throughout the whole emergency management system to address the difficult issues.

The agency will be the driving force behind the establishment, training and testing of the government's response resources, both those resident within the agency and those located in other government departments. The agency will also be responsible for the analysis and management of Alberta's highest risks. It should use an inter-departmental process to ensure that those risks are prevented and mitigated to the greatest extent possible and that the province can adequately prepare for and respond to the residual risks.

The agency should help ensure a viable, effective and immediate emergency response capacity for all parts of the province. The Commission believes that there must be a mechanism created within the agency to quickly support smaller and more isolated communities with additional staff and expertise. Most of the First Nations communities in Alberta require this same support and the agency should seek to establish mechanisms with Indian and Northern Affairs Canada to provide that support.

**2. Develop a leading edge, world class, inter-disciplinary institute to support the safety, environmental and security functions in Alberta. The institute would do this by promoting and sustaining research, risk management applications, post-incident analyses, knowledge transfer, technical development, stakeholder support and special projects. The institute would be a non-government body with representation from industry, academia, government, non-governmental organizations and the public.**

a. Establish the multi-stakeholder group already working with the Commission as the initial steering committee and task it with developing the business plan for the institute. Provide the institute with a start-up budget of $1 million in provincial funding.

b. As a priority, task the institute with the following:
- Establish a process to analyse and disseminate post-incident information and lessons learned from major incidents in Alberta and worldwide;
- Develop a body of knowledge about the behaviour, effects, and control of hydrocarbon spills into freshwater systems, and the response to large-scale spills of hazardous and noxious substances where the risk to the environment is high;
- Increase the amount of data contained in the existing geographic information system (GIS) and promote the availability of this data to all who need it; and
- Other urgent issues as identified by the steering committee.

A world-class emergency and risk management system requires research and knowledge support. The safety, environment and security institute would develop over a period of several years, led by a multi-disciplinary senior group of stakeholders from government, academia and industry. It should combine a strong research and knowledge component, best practices' transfer from worldwide sources, and outreach to stakeholders.

The institute must be sustainable, with long-term, stable funding and the support of governments, industry and non-governmental organizations. Its governance body should include representatives from industry, government, non-governmental organizations and the general public. A small staff or secretariat would be provided by the agency. During its initial start-up phase, the institute would operate with a nominal annual budget of about $1 million in provincial funding, as well as funds for research which would depend on the projects undertaken. After a formative period, it is anticipated that the institute should be funded at about $10 million per year, which includes a base-line research budget.

The institute would provide three distinct areas of benefit:

a. Research and Knowledge:
- Develop ways and means to prevent and mitigate future disasters;
- Analyse and monitor jurisdictional and regulatory frameworks and advise on their effectiveness; and
- Provide a better understanding of the impact of substances detrimental to the environment that could be released by such events.

b. Capacity Building for Stakeholders:
- Work with stakeholders to develop the framework for emergency response and management training programs that is based on best practice and research;
- Bring together study teams of experts, academics and students who would seek innovative solutions to risk related issues and increase the knowledge and skills base in stakeholder organizations;
- Act as a catalyst for public education on emergency response to natural and man made disasters; and
- Be a source of expert information for government and industry.

c. Development of Experts:
- Facilitate the development of the next generation of specialists by ensuring knowledge transfer to emergency response personnel and by training response experts where it is appropriate to do so; and
- Coordinate specialist technical training and analytical resources in a cost effective manner.

*A further explanation is provided in Appendix One.*

**3. Ensure the agency drives change within Alberta's emergency management culture, so that it supports a full proactive response with all the resources needed for a worst-case scenario that can be scaled back as necessary. This includes:**

a. Adopting the Incident Command System (ICS) at the incident site and at all emergency operations centres to ensure effective coordination during emergencies and communication with affected members of the public. The ICS is a proven process for ensuring the right people are in charge and that the right resources are available;

b. Ensuring that first responders have all needed information on the physical and chemical properties of substances involved, including their effects on human health and the environment; and

c. Ensuring that specialized response equipment is quickly available to responders, particularly in high-risk areas.

This culture of "overwhelming response" must be instilled throughout Alberta's emergency management and response system.

Coordination at the scene of an incident is a complex issue with many competing priorities. It is critical that the ICS structure is adopted as the standard site command and coordination mechanism.

Accurate and detailed information is necessary for sound risk-based decisions at the on-scene incident command centre, whether or not a product is classified as a dangerous good under dangerous goods legislation.

Pre-positioning of specialized response equipment is crucial to providing sufficient resources to responders quickly. A gap analysis should be conducted to ensure that the equipment is of the type required, available in sufficient quantities, and is suitably located, as well as considering who is making it available (industry, response organizations and agencies, contractors and others). The environmental emergency support team described in recommendation 4 should conduct the portion of the analysis related to environmental response equipment.

An immediate need is to ensure an adequate supply of appropriate containment booms, by way of in-situ caches or arrangements with existing industry spill cooperatives to supply the equipment. Discussions with the major shippers and transporters should be commenced immediately to ensure that sufficient boom can be supplied in the event of a major spill into a water body.

## INCIDENT COMMAND SYSTEM

The Incident Command System (ICS) provides a process for determining who is in charge at the incident site and all emergency operations centres and lays out the roles and responsibilities of all the key functions, including communications, plans, operations, information and intelligence, logistics, finance and administration. It is a standard process that can be learned and takes confusion out of incident command operations. It is essential that first responders, planners and emergency managers receive training and practice in the process. ICS is standard operating procedure in fire services and industry, and is becoming the standard in all emergency management organizations throughout North America.

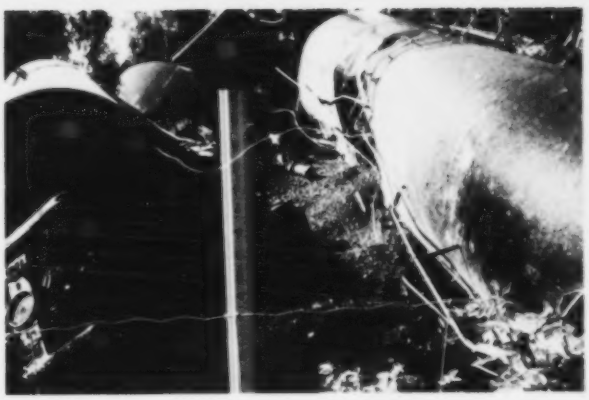
**4. Alberta Environment should place a high priority on quickly creating a dedicated environmental emergency support team.**

This team would provide response advice to the scene of an incident and to emergency operations centres. For major incidents, the team would go to the site and support the emergency operations centre. The environmental support team would assist the existing regional network of Alberta Environment staff as well as industry and municipal first responders. It would ensure that expert technical advice and assistance is available to field staff in site evaluation, emergency response techniques, environmental effects and clean-up strategies. These tasks should be a priority and major focus for the team.

It must be a full-time dedicated team focused on environmental emergency support and not other activities in the department. The team should have expertise in all aspects of response, recovery and remediation techniques, risk analysis, training, communications and exercise simulation with other government departments and first responders, focusing on the environment. Its role will be to assist and support first responders in ensuring an effective emergency response based on sound science, public safety and environmental protection.

The team would form partnerships with the emergency response expertise within Environment Canada and Transport Canada to enhance federal-provincial cooperation. The team also needs to work with the new agency (see recommendation 1) and other governmental resources to ensure the overall government response is coordinated. The Alberta Environment member seconded to the agency should come from this team. Other key departments should consider developing similar teams.

*See Appendix Two for more details on the team.*



**5. The Alberta Government needs to significantly step-up emergency response training and field simulations that involve emergency managers and first responders from all levels of government and industry. This is the most effective way of ensuring that everyone's emergency plans work and that everyone is ready to respond in a coordinated fashion:**

a. The agency should lead a training needs assessment in partnership with line departments.

b. Joint exercises and incident simulations must be conducted frequently and with a broad base of participants.

This need for more and better training came up again and again in discussions with stakeholders. Training for government emergency management and response people has been significantly scaled back in recent years, creating concerns that there may be gaps in the competency of the emergency management system.

The importance and usefulness of exercises and simulations for ensuring that emergency response plans are effective cannot be over-stated. They are also vital for ensuring that all participants know one another and in building trust and cooperative relationships among response agencies. Exercises and simulations are powerful tools in developing response team cohesion as well as collaboration and cooperation between stakeholders at the incident.

Training development must be closely allied with the work of the institute.

**6. The Government of Alberta should adopt an all-hazards risk management decision-making process. The process must be open and produce a suite of optimal risk control measures based on prevention, mitigation, emergency preparedness and response and recovery. Stakeholder communications must be integrated throughout the process. The following specific recommendations relate to application of risk management in the world class emergency management system envisaged by the Commission. The Agency should take the lead in:**

a. Developing mitigation and adaptation strategies in order to prepare Alberta for the increasingly severe consequences of natural hazards that could have a devastating effect on people and the environment.

b. Implementing a full-blown risk management program to reduce the risk to the top-tier "at risk" water bodies and other environmentally sensitive areas:

- The effectiveness of the risk control plans for these high-risk areas should be regularly monitored;
- Frequent exercises should be conducted to test the emergency plans;
- Key personnel with emergency management roles must be trained to appropriate levels of effectiveness; and
- Risk control measures should include ensuring that all railways operating in the province have sufficient equipment and resources to effectively respond to releases caused by their operations.

When the risk management process for these high risk areas has been completed, the same process should be undertaken for the next level of areas at risk.

"... develop a cadre of professional emergency managers and technical specialists, properly trained and regularly exercised who can be deployed to an incident."

*Dr G. Predy, MD, FRCP*
*Medical Officer of Health, Capital Health*

c. Ensuring that the provincial government engages the federal government in a joint review of the risk posed by products shipped in large volumes or at an elevated temperature, with a view to having them treated in a similar fashion as regulated products are treated under the *Transportation of Dangerous Goods Act, 1992*.

d. Working with other provincial departments and the federal government to ensure that the railway safety management system addresses the risk of increasing train lengths, speeds, tonnages, and the volume of materials that could have a negative effect on the public and sensitive environments in the event of a major release. Both levels of government must also ensure stronger oversight of the railway safety management system.

**Alberta's Top-Tier Water Risk Areas**

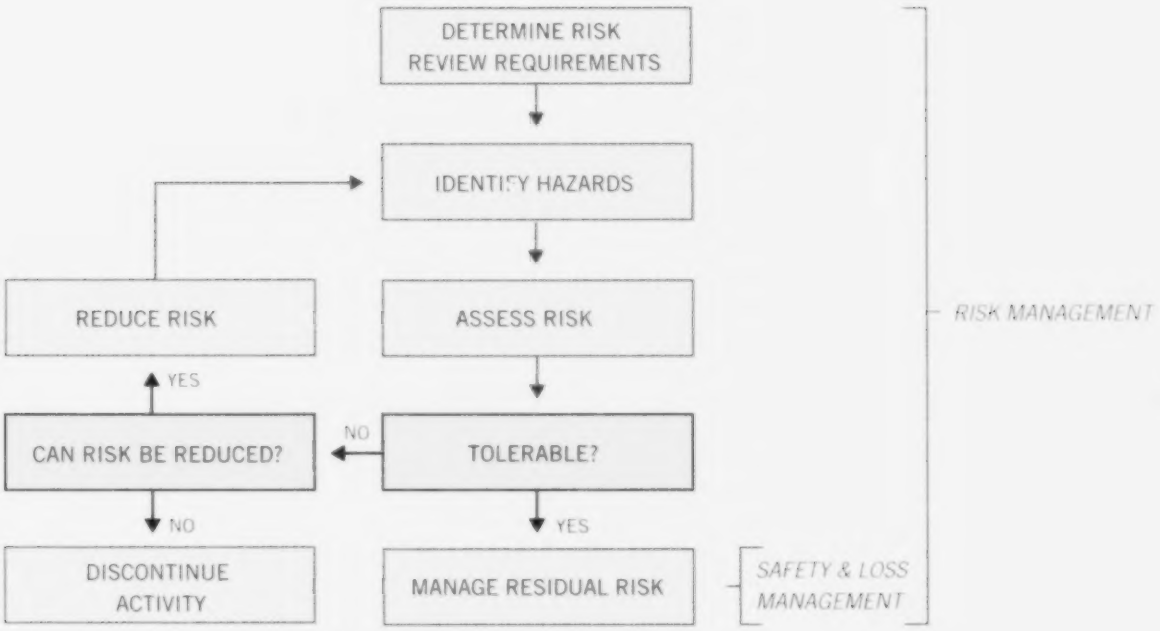
As previously noted, Alberta Environment manages some of the risks to water bodies in the province by requiring restrictions on discharges and releases from operations and through its regulatory and approvals process. The environmental aspects of other natural and man-made hazards are not adequately considered. The all-hazards risk management decision-making program being recommended would complete the risk management process.

The risk management process includes:

- Hazard identification,
- Risk estimation,
- Risk assessment and evaluation, and the
- Development and implementation of control measures to reduce the risk to acceptable levels. These measures include prevention and mitigation actions as well as emergency preparedness and response and recovery considerations.

A communications dialogue with key stakeholders is essential at all stages of the risk management process. The process as it relates to risks originating from natural and man-made hazards, including security concerns, should be led by the agency and supported with research and technical assistance from the safety, environment and security institute.

**THE RISK MANAGEMENT PROCESS**



**7. Alberta's risk and emergency management system needs a comprehensive communications approach that recognizes the vital importance of the following communications requirements:**

a. Warnings, Alerts and Communications with the Public: Industrial and municipal emergency response plans must address how the public will receive urgent warnings when an incident occurs and ongoing information during an incident and its clean-up and management phases.

b. Media Relations: The Government of Alberta needs to be able to assist communities when media interest is of a magnitude that it overwhelms local resources.

c. Risk Communications: The Government of Alberta should undertake an ongoing process of communications around risk with Albertans, as anyone may be affected by an incident such as a flood, fire, tornado, dangerous goods or environmentally harmful spill, and other natural or man-made occurrences.

d. Emergency Management Communications: As part of the Incident Command System, the agency should ensure that effective communications between departments, agencies and responders occurs on-site and at emergency operations centres.

e. Communications Infrastructure: The Government of Alberta should ensure that the hardware and infrastructure is in place to enable effective communications during emergency incidents. This would include ensuring that a reliable communications capacity exists within high-risk areas as a high priority. This is a critical part of the work that is contemplated under recommendation 6.

It is vital that the public receive emergency warnings and urgent advice such as whether they should evacuate or shelter-in-place when there is imminent danger – something that is handled well by the Emergency Public Warning System. However, the public also needs information when they aren't or are no longer in immediate danger and they need to know where they can get that information. While the news media is an important source, the public needs to be able to access information directly from those involved in handling the incident.

Risk communications is a very specific process strongly linked to risk management and a critical element in its methodology. Ideally, the full information needs of communities will be met and Alberta will have an informed public that has the information it needs before, during and after incidents.

To have a coordinated and comprehensive response, it is imperative that effective communications occur between all parties who have a role in emergency response activities, such as first responders, government departments and agencies. This can be facilitated through the one-window call centre and the ICS. An effective response is greatly hindered without this coordinated communications system.

Past experience has shown that one of the primary hurdles responders may face is a communications overload or a communications black spot; transportation corridors often go through remote areas or complex topography. These communications difficulties hinder an effective transfer of information to and from an incident scene.

Satellite phones are the only dependable source for communications for all areas at this time. This technology may offer a temporary solution in areas that have black spots. However, even satellite communications may be overwhelmed during large emergencies. Alberta's Solicitor General and Public Security is developing a backbone wireless radio super net system, with a goal of achieving enhanced coverage across the province. With these changes, serious problems with communication black spots will still exist within the cellular phone system, which is a critical communications vehicle in much of the province.

> Residents needed, and deserved, accurate and prompt information… poor cellular phone reception in the Watagamin area compounded the communication challenges of the incident. This caused difficulties for on-site communication.
>
> *Lake Watagamin Residents Committee Report to the Environmental Protection Commission*

8. Resolve jurisdictional issues.

a. The provincial government should address long-standing jurisdictional issues with the federal government, particularly with respect to emergency response. Alberta International and Intergovernmental Relations and the agency should jointly lead this initiative for the Government of Alberta.

b. All railways in the province should be brought under the same safety regime by harmonizing the Railway (Alberta) Act with federal standards, rules and regulations.

c. The Government of Alberta needs to ensure that its concerns related to the operation of railways within the province are given due consideration in the development of railway rules and regulations. In particular, the environmental response planning done by railways must be strengthened.

Jurisdictional issues such as who's in charge and who the lead agency is during a railway accident, and where and how an outside agency's jurisdiction begins and ends during a spill, have historically plagued railway incident responses. The railways, the federal and provincial governments, and municipal responders must achieve an emergency response relationship that is based on collaboration, cooperation and coordination.

An area that must assume greater profile in the management of incidents, particularly those affecting a large area and multiple jurisdictions, is that of engaging the First Nations and Indian and Northern Affairs Canada in enhancing their emergency management system. This will help ensure that the needs of their communities are given due consideration. (Also see recommendation 1.d.)

The *Railway (Alberta) Act* adopted a select number of federal regulations, rules and standards. This has resulted in guidance and compliance issues for the public, industrial and amusement railways. It's now time for provincial railways to be brought under the same safety regime as other railways. In the same way, the environmental response planning for all railways must be strengthened.

The provincial government must be given a greater role in railway regulatory development, particularly in the area of railway safety regulation, and where environmental impact assessments are concerned.

9. The Government of Alberta should establish an implementation team to develop a work plan, set timeframes, and monitor the progress of implementing the Commission's recommendations.

The Government of Alberta needs to take a comprehensive and systematic approach to implementing the Commission's recommendations. It is also important that timelines be established to ensure that actions are taken as soon as possible to help prepare for future emergency situations.

10. The Government of Alberta should agree to reconvene the Environmental Protection Commission or a similar group after six months and again at one and two years after this report to monitor and report on progress made.

The Government of Alberta needs to establish an independent review process with members who are knowledgeable about the Commission's work and recommendations. This will add credibility and strengthen the accountability process. It is important that the Government of Alberta and the public be given updates on the status of the implementation of the recommendations.

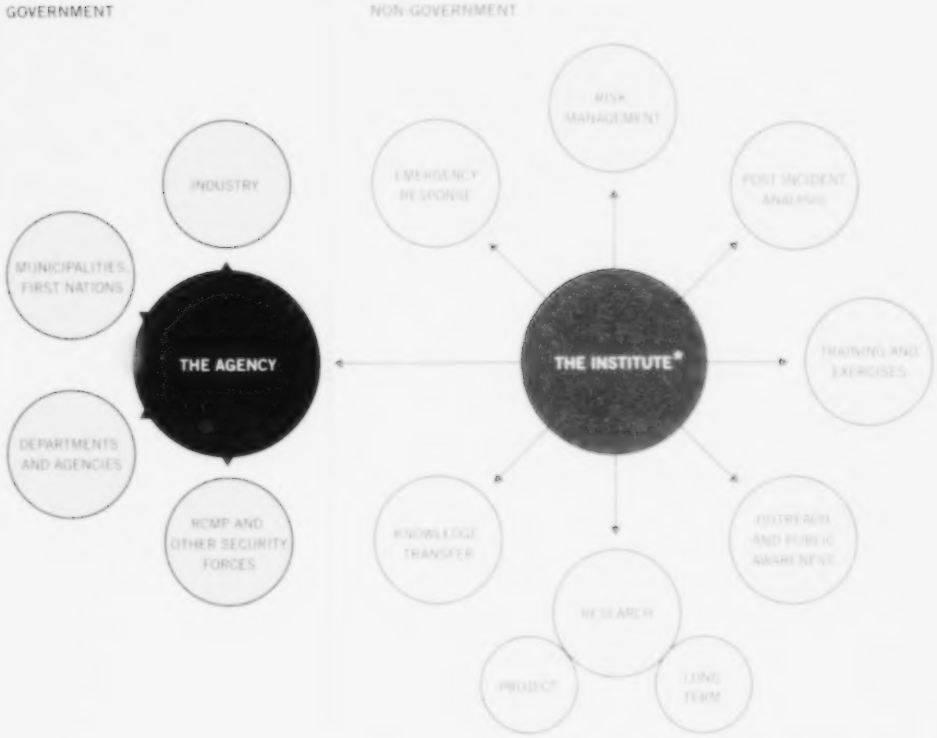
"We strongly urge that an intergovernmental policy between the Province, First Nation governments and the Federal government be devised whereby any First Nations peoples and territories that might be directly or indirectly affected by any future environmental incident be given full and equal consideration with all other parties instead of being subject to the negative consequences of these jurisdictional gaps."

*Submission by the Paul First Nation to the Environmental Protection Commission*

# APPENDIX ONE

## The Institute

**The Institute and its relationships within the emergency management system**




*The agency provides the secretariat to support the institute

## Structure

The concept of the institute to support the safety, environmental and security functions in Alberta is drawn from other world class centres of excellence such as the Natural Hazards Centre based at the University of Colorado at Denver and the Major Industrial Accidents Council of Canada. Centres of excellence support complex and diverse functions by bringing together stakeholders that have a vital interest in the subject and provide guidance, knowledge and research and other resources such as financial or staff assistance.

The institute should be a non-government organization, led by a steering committee or board of directors made up of leaders from the key stakeholder groups, including industry, academia, government, non-governmental organizations, emergency management organizations and the public. It would evolve over several years and could be co-located with an educational institution such as the University of Alberta, in government offices or even research space. It would have a small secretariat provided by the agency to manage its affairs, run the office, set up meetings and work groups, and maintain the files and library.

THE AGENCY

## Funding

The institute must be sustainable, with long-term, stable funding and the support of governments, industry and non-governmental organizations. In its developmental phase, the institute would operate with an annual budget of about $1 million plus an amount for research which would depend on the projects undertaken. Once fully operational, the institute should be funded at about $10 million per year which would include accommodation, staff salaries, base research activities and special projects.

## Getting Started

There is some important detailed work to be done on the roles, responsibilities, tasks, organizational design and legal incorporation for the institute before it becomes functional. This could begin immediately using the excellent multi-disciplinary group that is already assembled around the Commission. This group or steering committee could begin the start up process and get the institute operational. To do so, the initial steering committee budget would be around $1 million.

## Scope of Activities

The institute would be focused on supporting the emergency management and security functions and their related components with research, special studies, risk management process expertise, emergency management studies, post-incident analysis and lessons learned, environmental impact analyses, reference materials, conferences, information exchange and outreach activities, training and exercise design and other high priority activities determined by the institute's stakeholders.

Some of the immediate tasks engaging the institute would be:

- Establishing a process to analyse and disseminate post-incident information and lessons learned from major incidents in Alberta and worldwide;
- Developing a body of knowledge about the behaviour, effects, and control of hydrocarbon spills into freshwater systems, and the response to large-scale spills of hazardous and noxious substances where the risk to the environment is high;
- Continuing the development of a state of the art geographic information system (GIS) that is now partially operational in Emergency Management Alberta and ensuring that its data is comprehensive and that all response agencies have access to it and know about it; and
- Other urgent issues as identified by the steering committee.

## Other Suggested Activities of the Institute

### Risk Management

- Developing application methodologies for environmental risk assessment;
- Conducting risk assessments, for example, along major transportation corridors and high risk waterways; and
- Investigating the use of municipal land use planning restrictions to promote risk reductions such as construction in flood plains or on landslide-prone slopes.

### Training / Exercises

- Providing emergency responders with technical data and mitigation strategies;
- Facilitating specialized training; and
- Developing experts in response techniques.

### Continuous Improvement

- Working with emergency response stakeholders in the community on training and response exercise development;
- Developing prediction modeling;
- Assisting government agencies with the information required to drive regulatory changes; and
- Conducting post event analysis and identifying the lessons to be learned from major incidents in Alberta and worldwide.

### Resources

- Acting as an information source for government and industry;
- Providing a link between operational needs and research requirements;
- Developing future specialists through knowledge transfer to student researchers and others;
- Addressing knowledge gaps for emergency response personnel; and
- Developing a world-class reference library in its core areas of expertise.

### Public Awareness

- Developing emergency response partnerships with industry; and
- Supporting public education on how to prepare for and respond to natural and man made disasters including sustainability in isolation situations, evacuation and shelter-in-place.

### Research

- Reviewing existing environmental global research data relating to climate change, remediation, risk management and other areas;
- Conducting gap analyses to establish areas where Albertans are at risk and addressing the additional research needs suggested by the findings;
- Analyzing and monitoring jurisdictional and regulatory frameworks and advising on their effectiveness;
- Researching the fate, behaviour and effect of hydrocarbons in fresh water;
- Researching recovery techniques when hydrocarbons are released into the environment;
- Researching the behaviour of airborne contaminates and associated risks; and
- Developing novel response technologies.

### Emergency Response Coordination

- Assisting municipalities in developing solutions to problematic municipal emergency response planning issues;
- Identifying and developing environmental remediation techniques after a spill; and
- Identifying best practices in environmental mitigation and reconstruction.

## APPENDIX TWO

## Alberta Environment's Environmental Emergency Support Team

**TEAM DETAILS:**

**Alberta Government Department** – Alberta Environment

**Location** – Initially in Edmonton to maximize team effectiveness

**Reporting Relationship** – High level (Assistant Deputy Minister) in Alberta Environment, independent of the Compliance Section and investigatory roles

**Relationship to Institute and Agency** – Close working relationship with both the institute and agency

**Staffing** – Minimum of seven full-time staff plus administrative support dedicated to this area. One member to be seconded to agency (see recommendation 1.b)

**On call** – 24 hours/7 days a week for one of seven members, on a rotational basis

**Team resources** – Office in Edmonton, office equipment, telecommunications equipment, personal protective equipment, vehicle, etc.

### Team Functions

**1. Training**

a. Training the team – The team would initially need to spend considerable time training its members in leading-edge response techniques. Each team member would acquire a detailed knowledge of spill response and have a broad knowledge of how to handle a range of situations. Each member also would become familiar with response management systems and coordination roles found in the incident command system (ICS). They will also have to be trained to fully meet occupational health and safety requirements.

b. Training others – The well-trained team would familiarize first responders and staff from Alberta government departments on the basics of environmental response management. These requirements flow from the *Environmental Protection and Enhancement Act*, Alberta Environment's mandate and role, and the emergency reporting system.

c. Exercises – The team would participate in the design, coordination and assessment of environmental aspects of emergency response exercises for industry, government and municipalities.

**2. Response Equipment and Resources**

The team would compile and maintain an inventory of the current response equipment available in and out of the province. In addition to an equipment inventory, the team would maintain a contact list of experts and consultants in the field of spill response and would keep the list current.

**3. Environmental Incident Support and Advice**

The team would provide onsite or remote support and advice on response, recovery and remediation techniques to first responders and the existing regional network of Alberta Environment staff. For major incidents, the team would go to the site in support of the emergency operations centre.

**4. Outreach**

The team would promote its capabilities to the public, industry and other government agencies. The team would also enhance the partnerships with federal agencies involved in emergency response (Environment Canada and Transport Canada).

**5. Identify Knowledge Gaps**

The team would participate with the institute (see recommendation 2) in post incident assessments and ensure that knowledge gaps are addressed and this knowledge is transferred. This would ensure continuous improvements are achieved.

**6. Risk Management**

The team would assist in the identification of high-risk areas and the associated development of mitigation strategies, including the identification of necessary response equipment. This would also include risk communication to stakeholders.

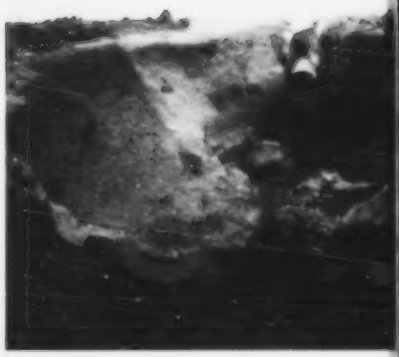
**7. Performance Measurement**

The team would assist in the development of key performance indicators for environmental incidents and report against these indicators on an annual basis.

**The Environmental Protection Commission would like to thank the following for insights and expertise they provided:**

Alberta Energy and Utilities Board
Alberta Environmental Network
Alberta Fire Chiefs Association
Alberta government departments, including:
- Environment
- Health and Wellness
- Infrastructure and Transportation
- Intergovernmental and International Relations
- Municipal Affairs
- Solicitor General and Public Security
- Sustainable Resource Development

Alberta Lake Management Society
Alberta Motor Transportation Association
Alberta Urban Municipalities Association
Canadian Chemical Producers Association
Canadian Petroleum Products Institute
Capital Health
City of Edmonton
CN Rail
County of Strathcona
CP Rail
Dendritic Consultants
Department of National Defence
Edmonton Emergency Response Department
Enbridge
Enform
Environment Canada
Environmental Services Association of Alberta
Fisheries and Oceans Canada
Golder and Associates
Industry Canada
Lake Wabamun Enhancement and Protection Association
Lake Wabamun Residents Committee
Lake Wabamun Watch Environmental Society
Natural Resources Canada
Nova Chemicals
Office of the Fire Commissioner
Other Provinces/Jurisdictions
Parkland County
Paul First Nation
Petroleum Service Association of Canada
Railway Association of Canada
Shell Chemicals Canada
Transport Canada
Transportation Safety Board
University of Alberta
Village of Wabamun
Western Canadian Spill Services
YoWoChAs Outdoor Education Centre



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